UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,894	01/11/2005	Toshifumi Yoshimine	43888-353	4951

20277 7590 12/31/2007

MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER	
WILLS, MONIQUE M	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
12/31/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,894	YOSHIMINE ET AL.	
	Examiner	Art Unit	
	Monique M. Wills	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

The request filed on **10/520894** for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. **10/520894** is acceptable and a RCE has been established. An action on the RCE follows.

The rejection of claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Gyenge et al. U.S. Pat. 7,060,391 in view of Ishikura et al. U.S. Pat. 4,473,623 is overcome. However, claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gyenge et al. U.S. Pat. 7,060,391 in view of Ishikura et al. U.S. Pat. 4,473,623 and further in view of Kobayashi et al. U.S. Pat. 6,558,848.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gyenge et al. U.S. Pat. 7,060,391 in view of Ishikura et al. U.S. Pat. 4,473,623 and further in view of Kobayashi et al. U.S. Pat. 6,558,848 as evidentiary support.

With respect to claims 1 & 3, Gyenge teaches a lead-acid battery with an electrode plate group (col. 6, lines 64-68) comprising: positive electrode plates that each include a positive electrode current collector comprising a Sn-containing lead alloy, and a positive electrode active material retained by said positive electrode current collector; negative electrode plates that each include a negative electrode current collector comprising a lead alloy, and a negative electrode active material retained by said negative electrode current collector (col. 6, lines 30-68). The Sn content in said positive electrode current collector is 0.5 to 2% by mass (col. 6, lines 10-15). electrolyte is a free electrolyte that is free from said electrode plate group, and said free electrolyte is in contact with said separators (col. 10, lines 25-35). With respect to claim 2, the Sn content in the positive electrode current collector is 2% by mass (col. 9, lines 35-37).

Gyenge does not expressly disclose impregnating the electrodes with electrolytes. The reference is silent to a pore volume per unit mass of said negative electrode active material is 0.115 to 0.150 cm^3/g.

However, Ishikura teaches that it is well known in the art to impregnate lead acid electrolytes with electrolyte in order to improve discharge storage characteristics (col. 2, lines 35-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to impregnate the electrodes of Gyenge with electrolyte, as taught by Ishikura, in order to improve discharge storage characteristics.

With respect to the pore volume per unit mass of the negative electrode, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the instant characteristics, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). The skilled artisan recognizes that the pore volume per unit mass of the negative electrode, directly effects gas permeability of the electrode. The skilled artisan recognizes that pore volume is a result effective variable. Therefore, the skilled artisan would be motivated to modify the pore volume

within the claimed range. See Kobayashi col. 6, lines 50-60, where the pore volume is modified to maintain mechanical strength of the electrode.

Response to Arguments

Applicant contends that the "optimum value" basis for an obviousness rejection can only be relied upon by the Examiner if the prior art first recognizes the modified parameter as a result-effective variable. Therefore, the Examiner's position with respect to optimizing pore volume per unit mass is not recognized by the prior art. This argument is persuasive and Kobayashi has been used to illustrate the obviousness of modify pore volume to optimize mechanical strength of the electrode.

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Patrick Ryan, may be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MW

5/15/06

MARK RUTHKOSKY
PRIMARY EXAMINER
12.26.07